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The EXTENSION ANIMAL HUSBANDMAN

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THE EXTENSION ANIMAL HUSBANDMAN

Issued quarterly by the Bureau of Animal Industry
and Extension Service, Cooperating.
C. D. Lowe, Senior Extension Animal Husbandman,
K. F. Warner, Senior Extension Meat Specialist.

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ARTIFICIAL INSEMINATION IN ANIMAL BREEDING

By W. V. Lambert, Senior Animal Husbandman in Charge,
Genetics Investigations,
U.S. Bureau of Animal Industry.

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The increasing use of artificial insemination in Russia and elsewhere during the past few years has brought about a great interest in this subject in the United States and several breeding circles have been organized by dairymen recently in which artificial insemination is used exclusively. It is a promising and often a very useful tool for breeders, and while it opens up channels for improvement that perhaps can be attained in no other way, it should be emphasized that this method of breeding has certain limitations and it is well that these limitations as well as its advantages be generally appreciated.

Artificial insemination should be used only by skilled workers. A practical knowledge of the structure of the reproductive organs and of reproductive physiology is necessary, as well as a knowledge of the procedures to be followed in the collection of semen and in the insemination of the female. In addition, certain precautions are necessary to avoid injury to the reproductive systems of the male and female and to prevent spread of disease. In general, the practice is not to be recommended at present for the average breeder but in certain cases, as in large breeding establishments, organized breeding centers, and experimental herds, it is both practicable and useful.

Uses for Artificial Insemination

The following are some of the ways in which artificial insemination may be used: (1) to increase the use of valuable proved sires; (2) to increase the percentage of conceptions; (3) to extend the period of usefulness of valuable sires that because of age or crippling are unable to serve; (4) to bring about mating where differences in size make natural insemination difficult or impossible; (5) in certain instances, as an effective aid in disease control; and (6) to make use of young sires before they have attained sufficient size to mate normally or sufficient age to be bred to a large number of females.

The Practice of Insemination

In the use of artificial insemination there are three essential operations which involve: (1) the collection of semen; (2) the examination of the semen; and (3) the insemination of the female.

Various methods have been and are being used for the collection of semen but certain of these methods are unsatisfactory and are being replaced by more satisfactory ones. The methods in most general use at this time for collection of semen are: (1) from the vagina following service; (2) by means of the artificial vagina; (3) by means of the breeder's bag, in case of stallions; and (4) by massage, in case of the bull, the chicken, and the turkey. In sheep induction of ejaculation by means of electrical stimulation has proved successful but it is primarily a laboratory method. Older but now obsolete methods of collection are: (1) by means of the sponge; (2) with the sperm collector; and (3) pan collection following withdrawal after coitus.

The artificial vagina is the most satisfactory means for collection with most species. With this device semen is obtained in a near-sterile condition and the entire ejaculate is collected. Most animals may be easily trained to use the artificial vagina. Of the other methods the breeder's bag is quite satisfactory for the stallion but not all stallions will work with it. Collection by means of massage has proved quite effective in the bull but it has the objection that considerable skill is required on the part of the operator, and further, collections are difficult from some bulls. With the chicken and turkey, collection by means of massage has proved very effective.

Certain characteristics of semen are indicative of the fertility of a male. Accordingly, where a sire is to be used extensively for either natural breeding or artificial insemination, careful examination of the semen should be made both before and at frequent intervals during the breeding season. Factors to be considered in such an examination are motility, number of sperm, abnormalities of sperm, quantity of ejaculate, color and consistency of ejaculate, hydrogen-ion concentration, and freedom from bacteria, parasites, or cellular debris that would indicate a diseased condition of the genitals of the male. While no one characteristic of the semen can be taken as an absolute index of fertility, high-quality semen is characterized by large numbers of highly motile sperm and the number of abnormal sperm should be low. Likewise, the semen should be of a color and consistency normal for the species.

Before undertaking insemination or collection of semen it is necessary that proper apparatus be on hand and that it be scrupulously clean and completely dry. The paddock or quarters should be ample in size and free from objects that might frighten or injure breeding animals. Where possible the same paddock should be used, for males work best in familiar surroundings. Insemination should be made in dust-free quarters to prevent undue exposure of the vaginal mucosa of the female to infectious agents.

An important consideration is to time inseminations so that they are made shortly preceding ovulation. In general, ovulation occurs near the end of estrus, although considerable variation occurs between different animals, as well as in the duration estrus and the intensity of manifestation of heat. Since it is usually impossible for the breeder to determine the exact time of onset of estrus, the following schedule is suggested for breeding or insemination:

Cow: Preferably twice, once shortly after beginning of heat and again 12-20 hours after beginning; if but once, 10-12 hours after onset of heat.

Ewe: During the last half of the heat period or, if feasible, at 12-hour intervals so long as in heat.

Goat: During the last half of the heat period.

Mare: On the second and fifth day of heat if possible, but if to be bred only once, on the third day of heat. Where a mare is in heat three days after breeding, breed a second time.

Sow: Late on the first day or on the second day of heat, preferably the second day.

The best results with artificial insemination are obtained by introducing semen well into the cervix or, with some species, directly into the uterus. This may be done by means of special type syringes, by a catheter or, in case of the horse, capsules are frequently used for insemination.

Storage, Transportation, and Dilution of Semen

Where inseminations are to be made some time after collection, certain precautions must be taken to keep the semen in a high state of viability. Temperature shocks must be avoided and the semen should be protected as much as possible from contact with air in order to decrease activity of the sperm. Contact with metals, water, or harmful chemical agents should be scrupulously avoided. The semen should be placed in a small vial immediately after collection, covered with sufficient high-grade neutral paraffin oil to exclude all air from the vial after it is stoppered, and then wrapped in two thicknesses of paper and set in a refrigerator in which the temperature is about 45° Fahrenheit. Another means of handling is to cover the paper-wrapped vial with two rubber thumb stalls, after which it may be dropped in a vacuum bottle containing water at 40°-45° F. This treatment provides for gradual cooling. Upon removal from the refrigerator or vacuum bottle, the temperature should be raised gradually before inseminations are made. Where in-

seminations are to be made within two hours after collection, it is sufficient to place the semen in a small vial, which should be stoppered and set in a dark place at room temperature (80°-85° F.).

Recently several successful long-distance shipments of bull and ram semen have been made. Such use of artificial insemination requires close coordination of effort between the parties making the collections and those making the inseminations. Shipments must be planned so that the minimum of time will elapse between collection and insemination, which requires that the semen be on hand when the females are at the proper stage of heat. Because of the difficulties involved, it is probable that such use of artificial insemination will be practical only in exceptional circumstances.

The main purpose of diluting semen is to spread the services of a sire by increasing the volume of his ejaculates. In Russia, dilutors have been used extensively with good results but under the conditions of livestock breeding prevailing in America no great need for the use of dilutors exists, although in special cases they may serve a useful purpose. Where dilutors are used, the volume of semen may be increased several-fold without decreasing the percentage of conceptions.

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EXTENSION ANIMAL HUSBANDMEN AT CHICAGO

At least 44 State livestock extension specialists representing 28 different States attended meetings and other events held in Chicago at the time of the recent International Live Stock Exposition. Most of these men were present at the meetings of the American Society of Animal Production and many of them participated in the program.

In the election of officers for 1939 the extension section chose L.P. McCann of Ohio as chairman, W.B. Connell of Pennsylvania as vice chairman, and Paul F. Newell of Mississippi as secretary. Eligibles who are not actively affiliated with the American Society of Animal Production may become members by remitting the annual fee of $2.50 to Dr. R.M. Bethke, Secretary-Treasurer, Ohio Agricultural Experiment Station, Wooster, Ohio.

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MARYLAND CLUBS FEED WESTERN LAMBS

Twenty 4-H Club boys in five Maryland counties are feeding 300 head of western lambs under a new project launched for the first time this year. A show and sale of the lambs are planned to be held at the Union Stock Yards in Baltimore about February 15. The purpose is to demonstrate the possibility of feeding western lambs in Maryland as an outlet for certain farm crops and to train the boys in the selection, feeding, care, and marketing of commercial lambs.

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PERSONAL NOTES

Georgia

Jones Purcell, swine specialist, resigned on December 1 to become an agricultural agent for the Central of Georgia Railway.

Idaho

E.F. Rinehart, extension animal husbandman, judged the Rambouillet and Corriedale sheep at the recent International Live Stock Exposition in Chicago.

Illinois

E.T. Robbins, extension animal husbandman, attended the recent National Agricultural Outlook Conference in Washington, D.C., as a representative of the Illinois Extension Service.

Nebraska

Howard J. Gramlich, head of the animal husbandry department at the University of Nebraska for many years, was elected secretary of the American Shorthorn Breeders Association in July and took over his new duties in Chicago on November 1.

New Mexico

W.H. Tolbert, extension animal husbandman, resigned to go into commercial work and was succeeded on November 1 by G.F. Ellis who has been county agricultural agent at Las Vegas in the same State.

U.S.D.A.

Dr. C.B. Smith, assistant director of Extension Service and chief of the Division of Cooperative Extension, retired at his own request on October 31 after 30 years in extension work and 42 years service in the Department.

West Virginia

H.L. Riggle, former West Virginia county agricultural agent and fieldman for the Pittsburgh Livestock Producers Commission Association has been appointed extension animal husbandman to succeed Benj. F. Creech who is now with the West Virginia Farm Bureau Federation.

Wisconsin

Howard J. Brant, extension animal husbandman for the University of Wisconsin several years ago, was recently elected secretary of the Belgian horse breeders' association with headquarters at Wabash, Ind. Mr. Brant succeeds J.D. Conner, Jr., who held this position for 51 years.

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Have patience! In good time the grass will be milk and the mulberry leaf will be silk. --Old Chinese proverb.

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PROGRESS IN GRASSLAND FARMING

By A. T. Semple, Assistant Head
Section of Agronomy and Range Management
Soil Conservation Service, U.S.D.A.

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Much of the success of the Soil Conservation Service in carrying out the mandates of the law which established it in the spring of 1935 depends upon the extent to which farmers can be converted from the excessive production of clean tilled crops and soil mining, to close-growing and sod crops and soil building. It is well known that 50,000,000 acres of former crop land, or approximately one-eighth of our present acreage of such land, have been practically destroyed for crop-producing purposes on account of erosion. One hundred million additional acres are far along the road to such destruction on account of farming methods which fail to protect the topsoil from loss by erosion.

It is evident, of course, that without the productive layer of topsoil, known as the A horizon, the quantity of forage that such land will produce becomes greatly reduced. In many cases the total growth on such land is not sufficient to protect the soil and is, therefore, wholly inadequate to supply a surplus to be grazed. Furthermore, when the topsoil is lost by erosion, the subsoil or B horizon produces vegetation inferior in quality. Everyone is familiar with the broom sedge, poverty grass, broom weed, snakeweed, cheat grass, and other counterfeits which have replaced the bluegrasses, the bluestems, and wheat grasses which thrived on our virgin soil. The decreased availability of plant food in badly eroded soils increases the likelihood of grazing animals suffering from mineral deficiencies. It is not always possible to correct such conditions immediately by applications of fertilizers, manure and lime, for it may take several years under the most favorable conditions to establish a good turf of nutritious grass.

The results of concerted efforts for soil conservation are encouraging when we sum up the work on the land of over 61,000 farmers in more than 500 private land demonstrations and work areas in 44 States of the Union, and note that the net reduction in cultivated land on account of converting such land to pasture, permanent hay land, woodland, and wildlife areas is 14.9 percent. These farmers who operate over 11-1/2 million acres, about half of which is tilled land, are cooperating with the Soil Conservation Service on practically a 50-50 basis. The contribution of the Service has been greatly reduced and in the future will consist principally of technical services in the State soil conservation districts which have been set up and where practices proved on the demonstration areas are being

applied. Twenty-six States have passed laws providing for such districts.

The Soil Conservation Service program goes further than simply converting tilled land to the production of perennial vegetation. On grazing land in the humid sections of the country, practices such as controlled grazing, fertilizing, liming, seeding, contour furrowing, weed control, protection from fire, and the protection of badly gullied areas from grazing are being put into effect. Of the 4,000,000 acres of grazing land on cooperating farms, over 10 percent has been contour furrowed. While the practices are aimed directly at improving the cover on the soil in order to reduce soil losses and the rate and amount of runoff water, all of them applied to land continued as pasture increase forage production, promote diversification on cash crop farms, and encourage farmers to use more of their acreage as grassland.

Such reorganization of farms and adoption of improved practices are helping to make the whole farm enterprise more profitable. For example, on 40 farms of the Lindale, Tex., project where soil conservation measures were practiced over a 3-year period, the average annual labor income in 1937 was over twice as great as on 20 farms as nearly comparable as possible where such practices were not used.

To western stockmen who may be disturbed by the tendency to convert cultivated land to grass in the farming sections, the following paragraph from page 84 of Iowa Station Bulletin No. 361 "Livestock Production in Iowa as Related to Hay and Pasture" by R. H. Wilcox, should be reassuring:

"Moderately increased acreages of soil conserving crops may be expected to have little effect on total feed production in the state, except over a long period of time, tending to maintain it at a higher level than would be possible if present depletion is allowed to continue, especially on the highly erodible soils."

Most of the work of the Service on range land is located in the Rio Grande, Gila, San Juan, Little Colorado, and Wind River watersheds and includes all of the Navajo and Hopi Indian reservations in Arizona and New Mexico, and the Shoshone reservation in Wyoming. In these watersheds, approximately 80 percent of the land is publicly owned. The principal object of the program on such land is to increase the vigor and density of the more erosion-resistant plants, or the better forage plants, and thereby decrease the quantity of silt being eroded and carried into Lake Meade above Boulder Dam and other reservoirs supplying water for irrigation and power production. Too close grazing and droughts have killed out much of the better fibrous-rooted grasses which formerly protected the topsoil and kept it porous, and resulted

in much land being stripped of its topsoil. The less-porous subsoil that remains produces weedy plants that give the soil less protection, thereby greatly increasing runoff and soil losses. Thus do floods become more costly and dangerous, damaging farms, highways, railroads, and shortening the life of reservoirs.

In these watershed areas, plans are well under way for the proper management of approximately 19 million acres of range land. Stocking to carrying capacity, which permit the better grasses to increase or maintain themselves, is by far the most important range land conservation practice. On overstocked ranges, practices such as fencing, water development, better distribution, contour furrowing are likely to intensify grazing and thereby to increase the rate of deterioration. Range surveys have shown 91 percent of the range on the watersheds mentioned above to be overstocked. Areas formerly stocked with 82,000 animal units have had the numbers of stock reduced to 61,000 or 25 percent.

Other practices being put into effect are adjustments in the kind of stock, season and period of grazing, and distribution of stock. These are accomplished to a large extent by water development and control, fencing, salt distribution, improved bedding and herding practices and water spreading to increase forage production on favorable areas.

Experimental work by State experiment stations, the Forest Service, and the Bureau of Animal Industry, as well as the experience of the better-managed ranches, have shown that range stocked to carrying capacity produce more vegetation and a better grade of vegetation than overstocked range. Overstocking a range kills out the better grasses because the stock eat them more closely than they do the weedy plants. If the leaves and stems of grasses have too little chance to develop, the roots are correspondingly reduced, forage production is cut down, and soil is endangered by erosion.

The benefits of stocking to carrying capacity and employing other good range management practices are well illustrated by the Ganado demonstration area on the Navajo reservation. Within the 8,000 acre enclosure, 400 ewes produced a 93 percent lamb crop, which averaged 67-pounds at less than 6 months of age and sold for 7 cents a pound. On the uncontrolled range, the lamb crop of ewes of the same breed and type was 61 percent, the lambs averaged 45 pounds at sale time, and they brought 5 to 6 cents a pound. Within the area, the ewes averaged 8.17 pounds of wool, while those outside averaged 5 pounds. At 25 cents a pound for wool and 6 cents a pound for lambs, the income per ewe on the properly grazed range was $5.78, while the overstocked range returned $2.90 per ewe.

The success of farm planning which involves the use of more grassland and the better management of such land indicates a great opportunity for changing our agriculture from soil exploitation to soil maintenance and improvement. Perennial grasses should be used in crop rotations because they provide the most effective means of building up the organic matter content and improving the structure of soils. This has been proved by research and is in keeping with the fact that the bulk of our most productive soils have been built up under a cover of grass.

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ANOTHER DYNAMOMETER

In order to have a practical demonstration of the value of farm power and to teach farmers the most efficient methods of horse management, it was felt that a dynamometer should be secured in the State if possible. Accordingly, a program was worked out whereby a number of county and State fairs cooperated in the purchase of a dynamometer from the Horse and Mule Association of America. This machine has been used extensively at county fairs and draft horse shows and has been enthusiastically received by horse men and others. Fifteen county horse shows were held in 1937 at which pulling contests or big-hitch demonstrations were given. These events were witnessed by approximately 17,000 people. --From Oklahoma Annual Report, 1937.

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WETTABLE SULPHUR FOR CATTLE LICE

Experiments conducted at the Sonora (Tex.) laboratory of the Bureau of Entomology indicate that 325-mesh wettable sulphur is effective in controlling the long-nosed cattle louse, Linognathus vituli L., when animals are dipped three times at 11-day intervals. The strength of the dip used was 10 pounds of sulphur to 100 gallons of water.

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ANNUAL PLANS OF WORK

Every plan of work should have a statement on the situation, including economic facts and other substantiating data through surveys or observation; problems growing out of this situation; suggested solutions; goals; teaching means and agencies to be used, including "who, where and how" and methods by which results are to be measured. In other words tell what you propose to do and why and how you propose to do it.

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In 1937 a total of 8,478 boys and girls enrolled in 4-H pig club work in Alabama and 4,407 completed the project. A total of 5,492 hogs were involved in the completions.

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NEW METHOD IN PIG CLUB PROJECT PROVES SUCCESSFUL IN PENNSYLVANIA

By L. C. Madison, Swine Specialist,
Extension Service, Pennsylvania State College.

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After a number of years of experience in and observation of pig club work in Pennsylvania, it was felt that better results could be obtained by changing the method and procedure of conducting the project. As it was carried out, it was believed that too much attention and credit was given to the individuality of the pig and not enough to the education of the club member. In too many cases the club was organized and the members permitted to secure their own pigs which were purchased and distributed, and suggestions given for their management, but for the most part the county agent or local leader had no control over the way the pigs were fed and handled, and as a result, in many cases the pigs were not properly cared for and the members learned little or nothing from their experience. And at the round-up the awards were distributed, not according to what the club members had done or learned, but almost entirely upon the individuality of the pigs. The result was that the pig club was not a project with large educational value and possibilities for teaching the fundamental principles of economic pork production, but a contest on the part of the members and their parents to see who had the best pig from the standpoint of conformation and finish. In other words, we were missing the main object and purpose of club work.

Often this method of procedure did more harm than good as it frequently happened that some club member would be fortunate enough to start with a potentially good pig but with little interest, and no attention would be paid to sanitation, pastures, balanced rations, etc. In many cases other members of the family would care for the pig and the club member would learn little or nothing about feeding or management and deserved little credit for the outcome, but would bring the animal to the round-up and in spite of all this he would win first place. Everyone who has had pig club experience can cite innumerable cases of this kind. Where such conditions were generally known this often created resentment on the part of other club members and parents, as they realized that credit was not being given where it belonged but that the awards were placed on the individuality of the pig and not upon what the club member personally had done, or learned, or how well he had carried out instructions. In other cases it caused the stamp of approval to be put on feeding and management methods and practices which the good livestock men in the community

knew were wrong and instead of helping to change and improve farm practices it encouraged the club members and the farmers in the community to continue in the same old habits.

In 1935 we determined, if we could, to change the project in such a way that it would have greater educational value and give better results. With the help of some of the county agents, a new procedure was worked out and a new basis of awards determined upon. This was as follows:

	Points
Management	50
Daily gain	20
Fitting	5
Showmanship	5
Record book	5
Individual merit of pig	15
	100

From the above it will be seen that 85 percent of the award is determined largely by what the club member personally has learned and put into practice, and we think credit goes where it belongs. Only 15 percent of the score is based on the individuality of the pig.

The management score is the most important factor in the table and has been worked out to place emphasis on important management principles that are too often neglected. The members are scored twice for management, the first time shortly after the pigs are distributed, the second time shortly before the club round-up. The management score is worked out on the basis of 100 taking into consideration sanitation, pastures, shade, shelter, rations, feeders, minerals, watering, feed record, etc., and a series of questions. The average of the two management scores is divided by two to get the score for the final rating.

The scheme was tried out in three counties during the summer of 1935 with encouraging results. We found as usual when the members were scored the first time for management, that in many cases the members had paid little attention to the instructions that had been given them at previous meetings, and again when the pigs were distributed. However, when they found that they were receiving a series of zeros and low grades on their management score, they immediately took interest and changed their methods of feeding and handling, and almost invariably when they were scored the second time their work showed a marked improvement, in most cases the members receiving a score of 100 or as close to it as local conditions made possible.

The result of this experience was so promising that some additional changes were made and the idea expanded to 17 counties in 1936

with similar results. In 1937 a new project book was printed and the new procedure adopted on a State-wide basis. The idea immediately sold itself to the county agents, the club members, and the parents. The improvement in results obtained is indicated by the fact that most of the subject matter specialists in Pennsylvania are changing their 4-H club projects to include the same principles. Another indication of its value and appeal is the rapid increase in pig club work in Pennsylvania since the idea has been put into practice. This increase is indicated in the following table showing a summary of pig club work in the State, starting with 1935 when we started experimenting with the idea in three counties:

Year	No. clubs	Total enrollment	Meetings held	Total attendance
1935	35	340	181	3,622
1936	62	631	187	6,310
1937	88	949	467	10,394
1938	130	1,491	775	16,943

These figures show a striking increase in the work in three years, and lead us to believe there is merit in the idea and that it is an improvement over the old method of procedure, and that with a few changes which experience has suggested, it should be continued.

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MR. BRIGHAM SAYS -

The success of this whole long-time endeavor in land use and agricultural planning will depend largely upon the attitude and initiative with which we go about the job of organizing, stimulating and assisting farmers to analyze their problems and plan their needs in terms of the whole problem for each community, each State and for the nation as a whole. --Reuben Brigham, Asst. Director of Extension Service.

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YOUTH

We who are old grow roots,
Youth grows wings.
Roots cling deep to the feel
Of earthy things.

Wings stretch up to the sun
Through winds and rain;
Leaving an old world done
For new domain. --Susie Dawson Johnson

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NEBRASKA PASTURE-FORAGE-LIVESTOCK PROGRAM

By Walter Tolman, State Extension Agent in Animal Husbandry,
Nebraska College of Agriculture.

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Nebraska has this year restored pastures, built up roughage reserves and commenced a return to normal livestock numbers. The results of the Pasture-Forage-Livestock Program this year present a striking "before and after" picture.

January 1, 1938:

1. Pasture condition 36 percent of normal
2. Total corn production for past 4 years, little more than one normal crop
3. Hog numbers less than one-third normal, cattle numbers reduced 30 percent in four years because of feed shortage.

December 1, 1938:

1. Pasture condition 67 percent of normal
2. Corn crop only one-half normal but grain sorghum acreage double 1937. Per acre yield of sorghum 5 to 10 times that of corn in many sections
3. Large supply of roughage stored as basis for return to normal livestock production and as a reserve in case of years of low production
4. Sixteen thousand, nine hundred and twelve farmers attended 119 county and district meetings where feeding sorghums was discussed
5. Three thousand, five hundred and four farmers saw test animals fed grain sorghums in comparison to corn under local conditions
6. Return to normal livestock numbers started largely through breeding rather than purchase
7. Almost 50 percent increase in 4-H livestock breeding club enrollments
8. Twelve hundred farmers and ranchers planning feed production, keeping feed records and demonstrating improved pasture, forage, livestock practices to their neighbors
9. State Pasture-Forage-Livestock Clinic attended by 600 persons representing 60 counties and South Platte District Clinic by 425.

This record was achieved with only partial relief from subnormal rainfall conditions through the cooperative efforts of farmers and representatives of the agricultural extension service, chambers of commerce, Agricultural Adjustment Administration, Soil Conservation Service, Forest Service, Farm Security Administration, and the Farm Credit Administration.

For the past three years a cooperative program known as the pasture improvement contest has been carried on in Nebraska. This program seemed to appeal only to farmers in eastern Nebraska and failed to take into account pasture utilization as much as it was felt it should. At the annual extension conference it was decided to expand this program to take in forage production and livestock management and to minimize the contest features.

The extension agents in agronomy, animal husbandry, dairy, forestry, agricultural engineering, agricultural conservation and farm management constituted a committee to develop plans for this project. A handbook was prepared giving in some detail the situation as to crops, livestock and farm management. Recommendations for efficient production and utilization of pasture and forage and an outline of procedure in developing the program were made. District conferences were called which were attended by county agents, district agricultural conservation supervisors and county agricultural conservation committeemen. Representatives of the different departments of the Extension Service and representatives of the South Platte United and Omaha Chambers of Commerce presented the material.

The plan was to work rather closely with a limited number of demonstrators who would plan their crop and feed operations carefully, keep records and act as demonstrators to their neighbors. The chambers of commerce cooperated in local, district and State-wide recognition meetings of outstanding demonstrators. Additional assistance from the State office was given most county agents in helping cooperators draw a livestock feed balance and plan.

County agents and in some cases local chamber of commerce members visited cooperators once or twice during the summer season. In many cases local recognition meetings or banquets were held for demonstrators in the project. In the South Platte area the United Chamber of Commerce joined in a recognition meeting at Holdrege. The Omaha Chamber of Commerce sponsored a recognition meeting at Omaha.

The major pasture improvement has been through increased use of temporary pastures and resting native pastures. Low subsoil moisture and prevalance of grasshoppers have made successful reseeding impossible except in rare cases.

Grain forage sorghums have been recommended to replace a part of normal corn acreage because they have proved their greater drought and grasshopper resistance.

Storing extra forage till time of future need has been stressed.

Since silage is more palatable, produces greater gains per acre and can be stored indefinitely, this form of preservation has been recommended. The trench silo is most popular because of low cost.

Grain sorghums are a new crop to most Nebraska farmers. Four cooperative tests were conducted in southern Nebraska, in addition to experiments at the experiment station and substations, to demonstrate the comparative value of sorghum and corn as feed. Hogs, cattle, and sheep were fed in these tests.

The largest purely educational farm meeting in Nebraska history was held at the close of the hog test at Franklin. Twelve hundred persons registered at the meeting besides others who could not be accommodated and who heard the program on the street through a public address system. Hogs from this test and the Curtis test were carried by truck to six other district sorghum feeding meetings.

Since sheep have a quicker turnover than cattle and require less grain than hogs, there is considerable new interest in farm flocks. Western yearling ewes have been urged as breeding stock. The extension service assisted in securing five carloads of these ewes and stimulated the Farm Security Administration to locate another 1,000 such ewes. These flocks of yearling ewes will be used as demonstration flocks in comparison to flocks of native ewes or aged western ewes which are the rule in the State. The western yearlings are considered more satisfactory than natives because they cost little or no more than a native lamb will sell for. The yearlings are preferable to lambs for breeding since the lambs breed late if at all, often have trouble at lambing and seldom have enough milk to raise a choice lamb. Aged ewes require more feed and care than young ewes, shear less, and raise poorer lambs. Purchase of aged "one-year" ewes is much more speculative than purchase of yearlings.

A State purebred ram show, sale, and sheep meeting was held. Three hundred and fifty attended this meeting. Selection and breeding-season management were demonstrated and general sheep problems discussed during one half day.

Bankers and business groups have cooperated in helping bring back foundation breeding stock. In a meeting of bankers, 4-H club leaders and 4-H county committeemen in Cedar County in the fall of 1937 every banker pledged to finance 4-H livestock projects in his community. Thirty odd livestock projects were handled in this way without loss. Over 100 will be financed in 1939. Insurance is a feature of 4-H projects which are financed.

The Fairbury chamber of commerce financed ten 4-H members in sow and litter projects when banks were reluctant to take the paper.

The project closed in eight months with all projects self-liquidating and the distribution at auction of 60 head of superior breeding stock.

A packer buyer at Nebraska City will select good gilts from his slaughter purchases, handle them under sanitary conditions, feed rations recommended by the college, breed them to outstanding boars and offer them to 4-H and vocational agriculture boys at original cost plus feed. The project will be a demonstration of type, sanitation and management with a show of pigs from these litters next fall.

Nebraska's spirit is unimpaired, her livestock industry normally responsible for 70 percent of her farm income is again increasing. Big advances have been made toward the objectives of the Pasture-Forage-Livestock Program which are:

1. Meet the present emergency by producing sufficient high quality roughage, so that present livestock can contribute an increased amount to farm income,
2. Rehabilitate drought-injured grasslands,
3. Restore to permanent grassland the more than 2 million acres now under cultivation which can be used more profitably for hay or pasture,
4. Conserve soil fertility and increase the average of soil-building and erosion-controlling forage crops,
5. Maintain a proper balance between livestock numbers and forage production,
6. Give more thought to proper utilization of forage crops produced both through placing more emphasis on quality of roughage produced and livestock programs which will utilize forage to greater advantage,
7. Build up feed reserves for productive livestock,
8. Seek to establish landlord-tenant relationships that will encourage more livestock production on tenant-operated farms.

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Don't part with your illusions. When they are gone you may still exist, but you have ceased to live. --Mark Twain

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Success in most things depends on knowing how long it takes to succeed. --Montesquieu

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Plenty of people have a good aim in life, but a lot of them never pull the trigger. --Mississippi Vocational News

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SHEEP WORK IN NEW YORK

By H. A. Willman, Junior Livestock Specialists,
New York State College of Agriculture

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An expression of interest in sheep production and in sheep problems in New York State has been indicated during the past three years in the attendance at sheep meetings which have been held in connection with the "Better Lamb Program." At more than 100 method demonstration meetings which have been held on parasite control, dipping, shearing, lamb grading and drenching, an average of over 50 persons has been present.

Farming in some sections of New York State is becoming more and more specialized until many farmers are either dairymen, poultrymen, fruit growers, or cash crop farmers. Such farming systems require heavy labor, feed, and fertilizer costs. This trend in some areas has resulted in thousands of acres of land and tons of roughages going to waste. The day of cheap labor apparently is gone and many farmers are experiencing difficulty in securing competent help at prices which they can afford to pay. Right now, many farmers are interested in getting along with less outside labor. They wish to use their 12 months' labor more efficiently; they want to turn more of their grass and rough feeds into money and also maintain the fertility of their farms. Many of our farmers believe that sheep can become an important part of their farm business because they require little labor and less expensive buildings. Then too, sheep are on pasture when the summer work is heavy and so fit in well with fruit and cash crops where labor is so seasonal and fertilizer so essential.

During the past three years a very large percentage of our flock owners have reported that their farm flock returns have been satisfactory. Last year in connection with a market lamb survey nearly 50 percent of 428 sheep growers located in 16 different counties gave an estimate of their flock returns. These men estimated their returns above feed cost per ewe at from $5 to $8 per head. Eighty five percent of the entire number of growers said that they were satisfied with their returns. According to a 1937 farm account study farm flocks were rated among the leading farm enterprises in terms of a labor return per hour spent. It is believed that sheep production in New York State should be looked upon as a conservative business, however, and not as a get-rich-quick enterprise.

It has been suggested by some leaders in the State that we

have no surplus of lambs or a marketing problem because we are producing only a small percentage of the lambs which are consumed annually in metropolitan New York. It is pointed out that nearly as many lambs move through the State en route to New York City during some weeks as are produced in the State in a year. When we consider that we are at the gate of this great lamb-consuming center and have plenty of pasture and generally sufficient feed to finish lambs at desirable market weights, an opportunity in sheep production certainly seems evident. Because of the nearness to market, lambs can be marketed for a cent or less a pound, including shrinkage.

The tendency in handling eastern flocks is towards better production methods. More interest is being shown in problems which have a bearing on enterprise returns. Three years ago, sheep growers in eight counties adopted a sheep and lamb program which emphasized parasite control, the use of purebred rams, improved feeding, management and marketing. In 1936, 16 counties cooperated in the State extension sheep program and during the past year this increased to 24 cooperating counties. The work in these counties has included barn meetings, sheep field days, three district ram sales and the sponsorship of a 4-H lamb show and sale which annually handles over 500 head of 4-H lambs. The extension program has been handled largely as a contest in which several counties have been ranked according to the methods which their growers have followed in managing their flocks. In 1935 a total of 208 growers cooperated with their sheep committees; 347 in 1936 and 428 during the past year. The farm flock reports which these cooperators have supplied have been of interest and value to sheep men and have served as a useful basis in developing a number of county sheep programs.

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Life is a grindstone, and whether it grinds a man down or polishes him up depends upon the stuff he is made of.

--Agricultural Leader's Digest

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"Experience is what you have left, when everything else is gone."

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A FORMULA

"They found a little courage
That simmered in the sun,
They blended it with patience
And just a spice of fun;
They poured in hope and laughter,
And then with a sudden twist,
They stirred it all together
And made an optimist."

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PROGENY STUDY OF ABERDEEN-ANGUS, HEREFORD, AND SHORTHORN SIRES

By James R. Douglas, Junior Animal Husbandman,
U. S. Bureau of Animal Industry.

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The following table presents a brief summary of a progeny study undertaken for the purpose of rating the leading sires of the Aberdeen-Angus, Hereford, and Shorthorn breeds based on the show-ring performance of their offspring in the International Live Stock Exposition for the period 1927-1936. The sires are listed in accordance with the total score each sire accumulated during the period.

Rating of Beef Sires at the "International," 1927-1936

Breed	Name of Bull	Total score*	Score by sex		No. of progeny placed
			Male	Female	
Aberdeen-Angus	Prizemere 32nd	419	190	229	61
	Blackcap Revolution	307	173	134	44
	Eileenmere 32nd	284	117	167	41
	Revolution 41st	243	97	146	38
	Blackbird Bandolier of Page	229	85	144	33
	Emulous	228	136	92	34
	Quality Marshall 3rd	207	119	88	34
	Blackcap Bandolier 2nd	179	43	136	31
	Glencarnock Revolution 6th	161	76	85	22
	Ames Plantation Pal	142	29	113	19
Hereford**	Hazford Rupert 25th	236	105	131	31
	Coronet Incom	191	62	129	32
	Mischief Mixer 27th	168	74	94	26
	Prince Domino	155	113	42	20
	Prince Domino 2nd	152	79	73	19
	Publican Domino	151	97	54	22
	Hartland Mischief	151	87	64	24
	Prince Domino Mixer	145	82	63	23
	W.H.R. Royal Domino 2nd	136	43	93	17
	Prince Domino C	131	45	86	20
Shorthorn	Browndale County	325	173	152	46
	Browndale Archer	303	177	126	44
	Browndale Pilot	280	179	101	42
	Browndale Goldspur	248	141	107	37
	Prentice	218	111	107	36
	Ballylin Rodney	171	41	130	24
	Leveldale Dreadnaught	160	83	77	21
	Raveni Masterpiece	150	55	95	18
	Sni-a-Bar Golden Ring	126	38	88	19
	Calrossi Lord Rothes	109	69	40	18

*First place, 10 points; second place 9 points; and so on to tenth place, for which 1 point was credited. In addition, 2 points were given for a senior or junior champion award and 2 additional points for a grand champion award.

**Does not include 1930 and 1931 International results.

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MARKETING FEEDER CATTLE AND SHEEP IN NEVADA

By L. E. Cline, Marketing Specialist,
Nevada Agricultural Extension Service.

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Nevada is essentially a cattle and sheep producing State. The cattle industry accounts for 43 percent of its agricultural income, while the sheep industry provides 23 percent. Although the immense grazing areas of Nevada are not adapted to producing finished beef or mutton, they do furnish thousands of high-grade feeder livestock for both eastern and western feed-lot operators.

Late in September the Nevada rancher with his buckaroos rounds up his cattle from the mile-high-or-more mountain ranges and high plateaus and heads them toward the home ranch, where those to be sold are separated from the breeding herd and from other animals to be retained. Steers, surplus heifers, and cows are cut out from the rest of the herd to be sold as feeders, some to be finished in the State on alfalfa hay grown in the irrigated valleys but most to find their way to feed lots in some neighboring State, where they are put in prime condition for slaughter purposes.

The marketing of Nevada feeder livestock is a critical event for the producer. Profits may be made or lost by a very small variation in price at selling time. To guarantee this profit, insofar as possible, a unique marketing system has been developed within the State. This marketing arrangement consists of a cooperative effort between Nevada stockmen, the Nevada State Farm Bureau, and the University of Nevada Agricultural Extension Service, all working together to facilitate the sale of Nevada feeder livestock and to minimize the efforts of the prospective purchaser who is seeking feeder livestock within the State.

Well in advance of marketing time and before the stock are collected out of the mountain ranges by the owners, inventories of cattle and of sheep to be offered for sale by each owner are assembled on blanks furnished by the county agents where the stock are located. These inventories, giving number, kind, class, and location of animals are assembled and duplicate copies are sent to the State extension office where a State summary is prepared. As the current State summaries are prepared they are mailed to a list of past customers, livestock marketing agencies, and other persons or agencies interested in the purchase of feeder cattle and sheep.

Prospective purchasers, who may be interested in Nevada feeder livestock, are directed to contact the county agent in the county where

the livestock in which he is interested are located. The county agent, so contacted, is ready to assist the prospective purchaser in locating just the kind of cattle he wishes to buy. In connection with this service, the county agent makes it a point to keep his producers informed as to market trends and prices by means of circular letters and personal contacts, so that they may be better able to talk trade with the buyer.

During the five years this service has been in operation it has rendered a valuable service to both buyer and seller and has served to attract many buyers, who want the class of feeder cattle produced on Nevada ranges and appreciate the service rendered by this cooperative effort.

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WHAT IS THE WORD?

As we talk of the breeds of cattle, and plan for a
higher strain,
And double the food of the pastures, and heap up the
measures of grain,
Draw on the wits of the nation to better the barn and
the pen,
What are we doing, my brother, to better the breeds of
men?

We boast of our Herefords and Morgans, the worth of a
calf or a colt.
Or scoff at the scrub and mongrel as worthy a fool or a
dolt.
We mention the prints of a rooster, and point to the ram
in the pen,
But how do we reckon the value, the worth of the children
of men?

What of our boy, have we measured his need for the coming
year?
Does our mark as his sire in his features mean less than
our brand on a steer?
Thoroughbred! Sure, that's our watchword for stable and
pasture and pen,
But what is the word for the boys and girls that grow up
in the homes of men?

(From The National Wool Grower, September 1938)

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